

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
7 July 2005 (07.07.2005)

PCT

(10) International Publication Number  
**WO 2005/062018 A3**

(51) International Patent Classification<sup>7</sup>: **B01J 19/00**

(21) International Application Number:  
PCT/DK2004/000910

(22) International Filing Date:  
22 December 2004 (22.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
PA 2003 01917 22 December 2003 (22.12.2003) DK  
60/535,522 12 January 2004 (12.01.2004) US

(71) Applicant (for all designated States except US): **VER-SAMATRIX A/S** [DK/DK]; Gamle Carlsberg Vej 10, DK-2500 Valby (DK).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CHRISTENSEN, Soeren, Flygenring** [DK/DK]; Frederiksberg Bredegade 7b, 1tv, DK-2000 Frederiksberg (DK). **JOHANNSEN, Ib** [DK/DK]; Munkevej 24, DK-3500 Værløse (DK).

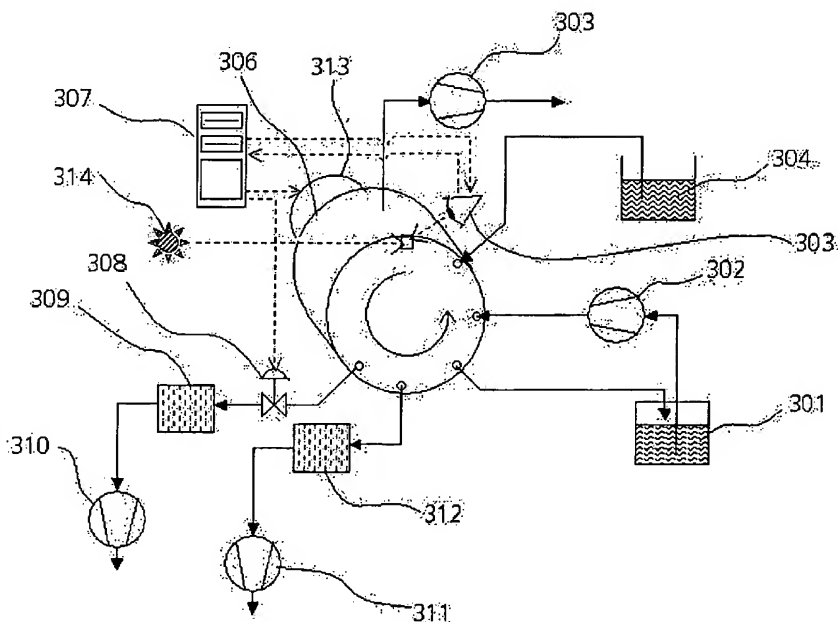
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:  
— with international search report

[Continued on next page]

(54) Title: APPARATUS AND METHODS FOR ANALYSIS AND SORTING OF PARTICLES SUCH AS POLYMER BEADS



(57) Abstract: The present invention relates to an apparatus for analysing beads and particles, such as polymer beads used e.g. for solid phase synthesis. The apparatus in one embodiment comprises a rotatable, circular disc comprising a plurality of through-going, inlets, wherein an individual bead from a composition comprising different beads can be fixed to the disc at the end-position of a through-going inlet by applying a pressure drop over said disc comprising said through-going inlets. The pressure drop results in beads being sucked (i.e detachably fixed) onto the disc on top of the through-going inlets. When the disc is rotated the beads are transferred from the position where they initially became attached to the disc to fixed positions wherein suitable devices for measuring and/or analyzing and/or sorting the beads can be operated in order to e.g. measure and/or analyse and/or sort at least one bead of a plurality of beads. More

specifically, the invention relates to an apparatus for measuring a plurality of optically detectable beads, such as polymer beads, said apparatus comprising a) a vacuum container comprising at least one planar capture body capable of rotating around a central axis, wherein said capture body comprises a plurality of through-going inlets, and wherein the diameter of each inlet is smaller than the average diameter of the beads to be measured and/or analysed and/or sorted, b) a pressure controlling device capable of controlling the pressure in the vacuum container, c) a device for rotating the vacuum container around the axis of the capture disc, and d) a device for measuring at least one property of at least one bead.

WO 2005/062018 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**(88) Date of publication of the international search report:**  
3 November 2005